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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,079	02/03/2004	Oscar E. Agazzi	13469US03	4537

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EXAMINER	
CORRIELUS, JEAN B	
ART UNIT	**PAPER NUMBER**
2611	

MAIL DATE	DELIVERY MODE
09/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/772,079	AGAZZI ET AL.	
	Examiner	Art Unit	
	Jean B. Corrielus	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7,11,15,17-19,23,27,32 and 33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7,11,15,17-19,23,27,32 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant's response has overcome the objection to the specification.

Terminal Disclaimer

2. The terminal disclaimer filed on 8/20/07 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent No. 6,201,831 and 6,707,848 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Objections

3. Applicant's response has overcome the outstanding claim objection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 7, 11, 17, 18, 23, 27 and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al US patent No. 5,809,071 in view of Lee US patent No. 6,055,119.

As per claim 1, Kobayashi et al teaches a feedforward equalizer 3 for equalizing a sequence of signal samples received inherently from a remote transmitter, the feedforward equalizer 3 having a gain and being included in a receiver see fig. 2, the

receiver having a timing recovery module 6 for setting a sampling phase and a decoder 5, the feedforward equalizer 3 comprising: a non-adaptive filter (3a) receiving the signal samples and producing a filtered signal (note that the filter 3a is non-adaptive because it is not adaptive controlled); and a gain stage (3b) coupled to the non-adaptive filter 3a, the gain stage allowing adjustment of the gain of the feedforward equalizer by adjusting the level (amplitude) of the filtered signal, the level (amplitude) of the filtered signal being adjusted so as to fit in operational range of the decoder see col. 6, lines 43-54. ; However, Kobayashi et al does not teach the further limitations of "wherein the feedforward equalizer does not affect the sampling phase setting of the timing recovery module of the receiver". Lee teaches the apparatus in which the feedforward equalizer 13 does not affect the sampling phase setting of the timing recovery module 12of the receiver fig. 1. See col. 1, line 65-col. 2, line 4. Given that fact, it would have been obvious to one skill in the art to modify Kobayashi et al so as to prevent the feedforward equalizer from affecting the sampling phase setting of the timing recovery module of the receiver as suggested by Lee in order to optimize sampling timing of the input signal as taught by Lee see col. 1, line 31.

As per claim 2, the feedforward equalizer inherently does not enhance noise.

As per claim 7, note that the function of the equalizer is to remove ISI induced by any source from the received signal and that would inherently includes ISI generated by a pulse shaping filter if such device was included in transmitter.

As per claim 11, it would have been obvious to one skill in the art to implement the equalizer as a programmable equalizer in order to be able to modify its

characteristics parameter based on the changing channel condition so as to enhance signal processing.

As per claim 17, see claim 1.

As per claim 18, see claim 2.

As per claim 23, see claim 7.

As per claim 27, see claim 11.

As per claim 33, see claim 1.

6. Claims 3, 15, 19, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al US patent No. 5,809,071 in view of Lee US patent No. 6,055,119 and further in view of Awata et al US patent No. 5,638,409.

As per claim 3, as applied to claim 1 above Kobayashi et al and Lee disclose the invention substantially as claimed but does not explicitly teach the additional limitations of " wherein the non-adaptive filter produces a precursor included in the filtered signal, the precursor being an indicator preceding each of the signal samples to facilitate timing recovery". Awata teaches an apparatus in which a non-adaptive filter produces a precursor included in the filtered signal, the precursor being an indicator preceding each of the signal samples to facilitate timing recover see col. 2, lines 32-39. It would have been obvious to one skill in the art to incorporate such a teaching in Kobayashi et al and Lee so as to generate optimum sampling phase to sample the received signal as taught by Awata et al col. 2, lines 38-39.

As per claim 15, as applied to claim 1 above, Kobayashi et al and Lee disclose the invention substantially as claimed but does not explicitly teach the additional

limitations " a noise cancellation stage, the noise cancellation stage subtracting from the filtered signal a noise signal received from a noise computing module of the receiver and producing a noise-reduced filtered signal". Awata teaches the noise cancellation stage 11 subtracting from the filtered signal a noise signal received from a noise computing module 22 of the receiver and producing a noise-reduced filtered signal fig. 3. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Kobayashi et al and Lee in order to minimize intersymbol interference.

As per claim 19, see claim 3.

As per claim 32, see claim 15.

Response to Arguments

7. Applicant's arguments filed 8/20/07 have been fully considered but they are not persuasive. Applicant argues that the equalizer 3 is not a feedforward equalizer. However it is noted that claims 17 and 32 do not include any limitation to a feedforward equalizer. As per claims 1 and 33, as shown in fig. 2, equalizer 3 receives an input signal performs equalization processing on the signal and generates a signal that is **forwarded** to subsequent part of the receiver for further processing. A signal performing such a function is themed feedforward filter or equalizer. Hence, equalizer 3 corresponds to the claimed "feedforward equalizer". In addition, the function of the equalizer disclosed by Kobayashi is the same as the function of the claimed "feedforward equalizer" which is to produce a "an equalized signal" hence, the equalizer circuit disclosed by Kobayashi is functionally equivalent to the claimed "feedforward

equalizer". Applicant further argues that circuit block 3a of Kobayashi is not a filter let alone a non-adaptive filter. However, it is noted that 33 does not include any limitation to a non-adaptive stage. With respect to claims 1, 17, and 32,the claim "non-adaptive filter" functions to produce a filtered signal, the "equalizing circuit" disclosed by Kobayashi functions to generated a filtered signal as well. Hence, the "equalizing circuit" disclosed by Kobayashi is functionally equivalent to the claimed "non-adaptive filter".

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jean B Corrielus
Primary Examiner
Art Unit 2611
9-14-07